

What is claimed is

- 1 1. An electrical connector comprising:
 - 2 a) a plurality of electrical conductors, each electrical conductor having a
 - 3 contact tail, an intermediate portion, a compliant portion and a contact
 - 4 portion;
 - 5 b) a first housing, with the intermediate portion of each of the plurality of
 - 6 electrical conductors attached to the first housing;
 - 7 c) a second housing, with the contact portions of each of the plurality
 - 8 electrical conductors attached to the second housing; and
 - 9 d) a compliant coupling between the first housing and the second housing.
- 1 2. The electrical connector of claim 1 wherein each of the compliant portions
 - 2 comprises an elongated segment with bends therein.
- 1 3. The electrical connector of claim 2 wherein each of the compliant portions
 - 2 includes a curve.
- 1 4. The electrical connector of claim 2 wherein each of the compliant portions
 - 2 includes a plurality of curves.
- 1 5. The electrical connector of claim 4 wherein each of the compliant portions
 - 2 includes two curves, curving in opposite directions.
- 1 6. The electrical connector of claim 1 wherein the first housing is an insulative
 - 2 housing.
- 1 7. The electrical connector of claim 1 wherein the second housing has gathering
 - 2 features formed therein.
- 1 8. The electrical connector of claim 7 wherein the gathering feature comprises at
 - 2 least one tapered surface.
- 1 9. The electrical connector of claim 1 wherein the second housing has a plurality of
 - 2 side walls bounding a mating area and the contact portions of each of the plurality
 - 3 of electrical conductors is disposed within the mating area.

1 10. The electrical connector of claim 9 wherein the contact portions are disposed in
2 the mating area in a rectangular array having rows and columns and the electrical
3 connector further comprises a plurality of conducting plates disposed in parallel,
4 each plate being disposed between adjacent rows of contact portions.

1 11. The electrical connector of claim 10 wherein the second housing is an insulator.

1 12. The electrical connector of claim 1 wherein portions of the plurality of electrical
2 conductors are separate insulative portions to form subassemblies.

1 13. The electrical connector of claim 12 further comprising a first plurality of
2 conductive plates, each conductive plate having:

- 3 i) an intermediate portion attached to the insulative portion of a
4 subassembly;
5 ii) a plurality of contact tails extending from the intermediate portion of the
6 plate;
7 iii) a plurality of compliant portions having distal ends extending from the
8 intermediate portion of the plate;
9 iv) a plurality of contacts electrically connected to the distal ends of the
10 plurality of compliant portions, wherein the plurality of contacts is
11 attached to the second housing.

1 14. The electrical connector of claim 13 additionally comprising a second plurality of
2 conductive plates, each of the second plurality of conductive plates attached to the
3 second housing and at least one of the plurality of contacts on one of the first
4 plurality of conductive plates.

1 15. The electrical connector of claim 14 wherein each of the second plurality of
2 conductive plates is attached to one of the plurality of contacts on each of the first
3 plurality of conductive plates.

1 16. The electrical connector of claim 1 wherein the complaint coupling comprises at
2 least one recess in the first housing with a lip extending into the recess and a tab
3 projecting from the second housing, with the tab engaging the lip.

- 1 17. The electrical connector of claim 16 wherein the compliant coupling further
2 comprises a stop spaced apart from the tab.
- 1 18. The electrical connector of claim 1 wherein the compliant coupling comprises
2 means for allowing motion in the plane between the first housing and the second
3 housing while restraining motion along the line between the first housing and the
4 second housing.
- 1 19. An electrical connector comprising:
2 a) a plurality of subassemblies disposed side-by side, each subassembly
3 comprising:
4 i) a plurality of electrical conductors, each electrical conductor
5 having a contact tail, an intermediate portion, a compliant portion
6 and a contact portion;
7 ii) an insulative portion encapsulating the intermediate portions of the
8 electrical conductors with the compliant portions extending from
9 the insulative portion;
10 b) a cap receiving the contact portions of the plurality of subassemblies and
11 holding the contact portions, ~~with the compliant portions extending from~~
12 ~~the insulative portion~~, whereby the cap may move relative to the insulative
13 portions of the subassemblies.
14
- 1 20. The electrical connector of claim 19 wherein each of the subassemblies holds the
2 intermediate portions in a plane.
- 1 21. The electrical connector of claim 20 additionally comprising a shield member ⁶⁰
2 attached to the insulative portion parallel to the plane of the intermediate portions.
- 1 22. The electrical connector of claim 21 wherein the shield member comprises an
2 intermediate portion adjacent the insulator, a plurality of compliant portions
3 extending from the intermediate portion and a forward portion attached to the cap.
- 1 23. The electrical connector of claim 22 wherein the forward portion has a plurality of
2 contacts thereon.

- 1 24. The electrical connector of claim 23 additionally comprising a plurality of second
2 type shields disposed within the cap, each of the second type shields connected to
3 at least one contact on a forward member of at least one subassembly.
- 1 25. The electrical connector of claim 19 wherein the compliant portions comprises an
2 elongated segment with bends formed therein.
- 1 26. The electrical connector of claim 25 wherein the bends comprise smooth curves.
- 1 27. The electrical connector of claim 26 wherein the bends comprise two smooth
2 curves, curving in opposite directions.
- 1 28. The electrical connector of claim 19 additionally comprising a housing receiving
2 at least a portion of the insulative portions of the plurality of subassemblies.
- 1 29. The electrical connector of claim 28 additionally comprising a compliant coupling
2 between the housing and the cap.
- 1 30. The electrical connector of claim 29 wherein the compliant coupling comprises
2 means for allowing motion in the plane between the housing and the cap.
- 1 31. The electrical connector of claim 29 wherein the compliant coupling comprises
2 means for allowing motion in the plane between the housing and the cap and
3 inhibiting motion along a line between the cap and the housing.
- 1 32. The electrical coupling of claim 29 wherein the compliant coupling comprises a
2 tab engaged under a lip.
- 1 33. The electrical connector of claim 19 forming a first connector in a matrix
2 assembly comprising a second connector, the second connector comprising:
3 a) a second plurality of subassemblies, each subassembly comprising:
4 i) a plurality of electrical conductors, each electrical conductor
5 having a contact tail, and intermediate portion and a contact
6 portion, the contact portion shaped to mate with a contact portion
7 of an electrical conductors in the first electrical connector;

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- 8 ii) an insulative portion encapsulating the intermediate portions of the
9 electrical conductors with the contact portions extending from the
10 insulative portion; and
11 b) a housing receiving at least the contact portions of the plurality of
12 subassemblies, the housing having a mating face adapted to engage the cap
13 of the first connector.

1 34. The electrical connector of claim 33 wherein the cap comprises gathering features
2 whereby the mating face of the housing is guided into mating position relative to
3 the cap.

- 1 35. An electrical connector, adapted for use in a matrix assembly comprising:
2 a) a first plurality of wafers, each wafer comprising a column of signal
3 contacts, each signal contact having an intermediate portion, a contact tail,
4 and a mating portion, each of the wafers further having a insulative portion
5 encapsulating the intermediate portions of the signal contacts;
6 b) a first housing holding the wafers in parallel with the mating portions held
7 in a first planar array;
8 c) a second plurality of wafers, each wafer comprising a column of signal
9 contacts, each signal contact having an intermediate portion, a contact tail,
10 a mating portion and curved portion having at least two opposing curves
11 joining the intermediate portion to the mating portion, each of the wafers
12 further having a insulative portion encapsulating the intermediate portions
13 of the signal contacts and leaving the curved portion un-encapsulated;
14 b) a second housing holding the insulative portion of the second plurality of
15 wafers in parallel;
16 c) a cap connected to the contact portions of the second plurality of wafers,
17 the cap holding the contact potions in a second planar array of dimensions
18 matching the first planar array.